U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	50-255/99004(DRP)
Licensee:	Consumers Energy Company 212 West Michigan Avenue Jackson, MI 49201
Facility:	Palisades Nuclear Generating Plant
Location:	27780 Blue Star Memorial Highway Covert, MI 49043-9530
Dates:	April 10 through May 21, 1999
Inspectors:	J. Lennartz, Senior Resident Inspector P. Prescott, Senior Resident Inspector, Duane Arnold Nuclear Station
Approved by:	Anton Vegel, Chief Reactor Projects Branch 6 Division of Reactor Projects

EXECUTIVE SUMMARY

Palisades Nuclear Generating Plant
NRC Inspection Report 50-255/99004(DRP)

This inspection included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a 6-week period of resident inspection activities.

Operations

- In general, the plant was operated in a conservative manner throughout the inspection period. The licensees decision to place the plant in a cold shutdown condition to repair the Primary Coolant Pump P-50A seal package was pro-active and conservative. Actions were taken to repair the degraded seal before any Technical Specification limits were challenged. Effective controls were implemented during high risk evolutions related to Primary Coolant System reduced inventory operations which demonstrated a positive focus on safety. (Section O1.1)

- Operator performance was satisfactory and generally characterized by strict procedure adherence. During the transition to reduced inventory, the Nuclear Control Room Operator's positive questioning attitude regarding primary coolant system level instrumentation response and their rigorous monitoring of plant parameters demonstrated deliberate and conservative plant operation. (Section O4)

- Operator training provided during the outage regarding shutdown cooling and reduced inventory operations was effective and timely. (Section O5)

Maintenance

- Maintenance activities were effectively controlled during the outage. (Section M1.2)

- Maintenance rule evaluations were conducted as required for maintenance activities during the May outage and were considered adequate. Also, the requirements of 10 CFR 50.65 for a periodic evaluation were met. (Section M1.3)

- Past repairs for Primary Coolant Pump oil leaks have not been effective. The May 1999 maintenance outage was required to repair an oil leak on Primary Coolant Pump P-50D which was subsequently determined to be a maintenance preventable functional failure. (Section M1.3)

- Failure of a Main Steam Isolation Valve to fully close was a maintenance preventable functional failure that resulted in the maintenance rule screening criteria to be exceeded. (Section M1.3)

Engineering

- Engineering personnel's positive questioning attitude in December 1998 identified that the Primary Coolant Pump Oil Collection System was inadequate. However, the questioning was not rigorous in that they failed to identify that all of the oil could not be drained from the collecting tank through the normal drain path. Also, precise measurements of collection tank dimensions were not obtained. Consequently, the oil

collection tank's useable capacity was less than that reported in Licensee Event Report 98-011. Safety consequences were considered minimal. (Section E2.1)

- Engineering conducted extensive testing regarding Main Steam Isolation Valve CV-0510 failing to fully close during required surveillance testing in cold shutdown. Engineering personnel's analysis was thorough and concluded that the root cause was excessive packing friction. Operability recommendations provided by engineering personnel were appropriate. (Section 2.1)

- Engineering personnel provided effective support during repairs to the Pressurizer Power Operated Relief Valve position indications. (Section E2.2)

- Engineering personnel's initial operability recommendation for Pressurizer Power Operated Relief Valve PRV-1043B was not thorough. Information available from various sources regarding the status and operating characteristics of PRV-1043B was not integrated into the operability recommendation. Consequently, the operability recommendation did not address conflicting information. (Section E2.2)

Plant Support

- Radiological protection personnel's efforts in challenging radiation workers to work smarter and more efficiently, and in highlighting ALARA principles were effective. Consequently, the actual radiation dose received during the outage was 20 percent less than what was projected. (Section R5)

Report Details

Summary of Plant Status

The plant began this inspection period at full power. However, one emergent equipment problem resulted in a slight plant derate. Specifically, power was reduced to approximately 90 percent on April 19, because licensee personnel identified a leak from a threaded connection on the suction side of nonsafety-related Heater Drain Pump P-10B. Following repairs, the plant was returned to full power on April 20. In addition, the plant was shutdown on May 7, for a maintenance outage that lasted approximately 10 days. Major activities included: 1) replacement of the seal package on Primary Coolant Pump P-50A; 2) repair of lube oil leaks on Primary Coolant Pumps P-50B and P-50D; and 3) repair of the position indicators on the Pressurizer Power Operated Relief Valves. The plant was returned to power operations on May 18, and was at full power on May 20, where it remained for the duration of the inspection period.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

Using Inspection Procedure 71707, the inspectors conducted frequent reviews of ongoing plant operations. In general, the plant was operated in a conservative and deliberate manner throughout the inspection period.

The licensees decision to place the plant in a cold shutdown condition to repair the Primary Coolant Pump P-50A seal package was pro-active and conservative. Actions were taken to repair the degraded seal before any Technical Specification limits were challenged.

Noteworthy observations included:

- plant operation and control of plant equipment during the outage were in accordance with procedures and the Shutdown Operations Protection Plan;
- potential problems related to the Primary Coolant System in reduced inventory, a high risk condition, were emphasized which demonstrated a positive focus on safety; and
- the maintenance outage was utilized to repair.

The inspectors concluded that the plant was operated in a conservative manner throughout the inspection period. Effective controls were implemented during high risk evolutions related to Primary Coolant System reduced inventory operations which demonstrated a positive focus on safety.

04 Operator Knowledge and Performance

a. Inspection Scope (71707)

The inspectors observed portions of evolutions related to the plant shutdown (May 7), Primary Coolant System reduced inventory operations (May 11 and 12), and plant startup (May 17 and 18). Also, the inspectors frequently reviewed, and independently assessed, Condition Reports related to operator performance issues.

b. Observations and Findings

The inspectors noted that operator performance during the observed activities was generally characterized by strict procedure adherence and conservative decision making. Adequate self-checking and peer checking was demonstrated with one isolated exception. Also, Control Room Supervisors demonstrated sufficient command and control with one noted exception. The inspectors had the following noteworthy observations regarding operator performance:

- Auxiliary Operators demonstrated proper face to face three-way communications with Control Room Operators;

- Auxiliary Operators demonstrated precise deliberate control of test valves during turbine trip testing. The inspectors considered this as improved performance from past observations of this evolution;

- Nuclear Control Room operators demonstrated a positive questioning attitude regarding primary coolant system level instrumentation response while draining to reduced inventory;

- The transition to reduced inventory was deliberate and controlled;

- Monitoring of plant parameters was rigorous during the transition to reduced inventory;

- Inadequate self-checking resulted in a valving error by an Auxiliary Operator during an evolution to sample a waste gas decay tank (C-PAL-99-0600). The error did not result in any adverse safety consequences. However, this was an additional example of an operator self-checking error. This type of operator performance deficiency was previously documented in Inspection Report 50-255/98022;

- During plant heat-up a steam bubble formed in the pressurizer before it was anticipated by the operators while the heat-up was stopped to complete required checklists. Plant parameters regarding temperature and pressure were maintained within the procedure requirements; however, there was a very small margin between actual and saturation temperature in the pressurizer when the heat-up was stopped.

  Pressurizer temperature subsequently increased slightly and consequently, a steam bubble was formed prior to procedural requirements. Control room operators noted the premature formation of a steam bubble and immediately

took appropriate mitigation actions. The procedural violation was considered minor in that no adverse safety consequences resulted.

However, the incident demonstrated a lack of pro-active command and control by the Control Room Supervisor in that the potential for a steam bubble to form for the given plant conditions was not effectively highlighted. Consequently, appropriate preventative actions were not taken. Condition Report C-PAL-99-0680 was generated to document the issue.

c. Conclusions

The inspectors concluded that operator performance was satisfactory and generally characterized by strict procedure adherence. During the transition to reduced inventory, the Nuclear Control Room Operator's positive questioning attitude regarding primary coolant system level instrumentation response and their rigorous monitoring of plant parameters demonstrated deliberate and conservative plant operation.

05 Operator Training and Qualification (71707)

The inspectors reviewed the operator training related to shutdown cooling operations and reduced inventory operations that was provided during the outage. The inspectors noted that the appropriate procedures as well as industry operating experience information was covered during the training sessions. All operating crew personnel assigned shift duties while the primary coolant system was in reduced inventory received training prior to their scheduled shifts. Also, operators that were questioned were knowledgeable of the off-normal procedure related to loss of shutdown cooling. The inspectors concluded that operator training provided during the outage regarding shutdown cooling and reduced inventory operations was effective and timely.

O8 Miscellaneous Operations Issues (92901)

O8.1 (Closed) Unresolved Item 50-255/96014-05: "Review by Nuclear Reactor Regulation (NRR) of Difference Between Technical Specifications (TS) and As-Built Control Room Heating, Ventilation and Air Conditioning (CR HVAC)." During observation of a CR HVAC surveillance test the inspectors noted that the licensee entered TS 3.14, which specified a three and one-half day limiting condition of operation (LCO). However, the licensee's LCO board indicated that a seven day LCO was entered.

The specific wording of TS 3.14 implied that a single train of CR HVAC existed which did not reflect the as-built CR HVAC system. The single train was the original system design which was replaced in 1986 with two fully independent trains. A TS change was submitted to NRC to reflect the actual CR HVAC system configuration. In the interim, the licensee issued Standing Order 54, which specified a seven day LCO for one inoperable train of CR HVAC. The Standing Order was consistent with Standard TS for CR HVAC systems that contained two fully independent trains.

The Office of NRR issued TS amendment number 186 on May 6, 1999, to Palisades that revised TS 3.14 to reflect two fully independent trains of CR HVAC system. The licensee intended to implement the TS amendment within 60 days after it was issued. This item is closed.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments (61726, 62707)

The inspectors reviewed portions of the following maintenance work orders and surveillance activities. Also, the inspectors reviewed TSs and the Final Safety Analysis Report (FSAR) when applicable.

Work Order No:

- 24814437 Auxiliary Feedwater Pump P-8C Discharge Check Valve Non-Intrusive Testing
- 24814436 Auxiliary Feedwater Pump P-8C Suction From Condensate Storage Tank Check Valve Non-Intrusive Testing
- 24814758 Main Steam Isolation Valve CV-0510
- 24910217 Pressurizer Power Operated Relief Valve PRV-1043B Position Indication

Surveillance No:

- MO-7A-2 Emergency Diesel Generator 1-2
- QO-21 Inservice Test Procedure - Auxiliary Feedwater Pumps
- QO-37 Main Steam Isolation and Bypass Valve Testing

The observed maintenance activities were completed in accordance with approved procedures and work packages were available at the job locations. Suitable test and measuring equipment was used when needed. Also, appropriate ALARA radiological practices were demonstrated when applicable.

M1.2 Control of Maintenance Activities

a. Inspection Scope (62707, 71707)

The inspectors reviewed the outage schedule and frequently observed plant status meetings during the outage. Also, the inspectors frequently reviewed plant equipment availability during on-going maintenance activities.

b. Observations and Findings

Maintenance activities were controlled such that plant equipment required by the Shutdown Operations Protection Plan remained operable. Also, appropriate precautions were in place regarding work activities and plant equipment that had the potential to increase risk while the primary coolant system was in reduced inventory (i.e., no switchyard work, no work on main transformer, both Low Pressure Safety Injection

pumps protected, equipment hatch closed). In addition, shift outage management effectively communicated emergent issues to plant management.

However, the inspectors noted that risk assessment personnel did not review or provide input to the outage schedule. Risk assessment personnel indicated that a quantitative assessment could not be provided because of shutdown modeling limitations. A qualitative assessment, when compared to the Shutdown Operations Protection Plan, was also not completed because of the scheduled short duration, eight days, for the outage. A qualitative assessment had been completed by risk assessment personnel for past refueling outage schedules.

c. Conclusions

The inspectors concluded that the maintenance activities were effectively controlled during the outage and that Shutdown Operations Protection Plan was followed. However, a quantitative risk assessment for the outage schedule was not completed because of modeling limitations.

M3 Maintenance Procedures and Documentation

M3.1 Verification of Maintenance Rule Requirements

a. Inspection Scope (62707)

The inspectors reviewed the licensee's "Maintenance Rule Refueling Periodic Assessment," for the period from April 1, 1997, to September 30, 1998, and some maintenance rule evaluations that were conducted during the outage.

b. Observations and Findings

The inspectors noted that maintenance rule evaluations were completed for the Pressurizer Power Operated Relief valve position indication failures, the Primary Coolant Pump oil leaks, and Main Steam Isolation Valve (MSIV) CV-0510 failing to close (see Section E2.1 for additional details). The evaluations were considered adequate. Also, the Maintenance Rule Refueling Periodic Assessment met the requirements of 10 CFR 50.65(a)(3).

The May 1999, maintenance outage was scheduled because of an oil leak on Primary Coolant Pump P-50D. A leak of 8 to 12 drops per minute was identified on the upper oil reservoir manway gasket that had been removed during the December 1998 outage and apparently not reinstalled properly. Consequently, the leak was considered a maintenance preventable functional failure. Several other minor leaks at bolted connections were identified and repaired.

The inspectors noted that the primary coolant pumps were already in maintenance rule category a(1) and that goal monitoring would continue. Primary Coolant Pump oil leaks have been a long standing problem and past repairs have not been effective. Engineering personnel generated Condition Report C-PAL-99-0135 to further evaluate the oil leak problems.

A maintenance rule evaluation that was completed regarding CV-0510 failing to close concluded that the failure was a maintenance preventable functional failure. A maintenance preventable functional failure regarding MSIV CV-0510 was also identified in December 1998. Consequently, the maintenance rule screening criteria of less than two maintenance preventable functional failures in a 24 month period was exceeded. Condition Report C-PAL-99-0744 was generated to document that the maintenance rule screening criteria was exceeded and to evaluate the system for possible addition to maintenance rule category a(1).

c. Conclusions

The inspectors concluded that maintenance rule evaluations were conducted as required and were considered adequate. Also, the requirements of 10 CFR 50.65 for a periodic evaluation were met.

Past repairs for Primary Coolant Pump oil leaks have not been effective. The May 1999 maintenance outage was required, in part, to repair an oil leak on Primary Coolant Pump P-50D which was subsequently determined to be a maintenance preventable functional failure. Also, failure of MSIV CV-0510 to fully close was a maintenance preventable functional failure that resulted in maintenance rule screening criteria to be exceeded.

III. Engineering

E1 Conduct of Engineering

E1.1 Primary Coolant Pump Oil Collection System

a. Inspection Scope (37551)

The inspectors reviewed the operability determination for the Primary Coolant Pump Oil Collection System and the related Condition Report to assess safety significance.

b. Observations and Findings

Engineering personnel identified, in December 1998, that the Primary Coolant Pump Oil Collection System did not meet 10 CFR 50, Appendix R requirements (see Inspection Report 50-255/98022 for details). The licensee reported this issue in Licensee Event Report 98-011.

However, engineering personnel identified in May 1999, that the data provided in the event report was in error. Oil collection tank capacity was calculated from dimensions that were incorrect. Also, engineering personnel failed to identify that all of the oil could not be drained from the tank through the normal drain path because of the piping configuration. Consequently, approximately 5 gallons of oil remained in the tank after it was drained. Therefore, the revised useable capacity was determined to be 79 gallons which was 12 gallons less than what was reported in Licensee Event Report 98-011.

Consequently, if a catastrophic failure of the upper oil reservoir (84 gallons) occurred, then approximately 5 gallons of oil would overflow onto the containment floor. In

contrast, Licensee Event Report 98-011 had documented that the oil collection tank could collect all the oil from the upper reservoir. Further, the event report documented that independent failures of both the upper and lower oil reservoirs would have to occur in order for the collection tank to overflow.

Engineering personnel did not apply a rigorous review in December 1998 when the deficiency was first identified in that they failed to identify that all of the oil could not be drained from the tank through the normal drain path because of the piping configuration. Also, rigorous attention to detail was lacking when obtaining collection tank dimensions in December 1998 in that the measurements were subsequently determined to be incorrect. Condition Report C-PAL-99-0637 was generated to document the issue.

Adverse safety consequences were considered minimal in that there were no heat sources or combustible materials in the vicinity of the oil collection tanks. Also, the Primary Coolant Pump oil reservoirs had level indication and associated audible alarms in the control room. The low level alarm would come in before the collection tank was full and the alarm response procedure required the operators to investigate the reason for the alarm. Consequently, operator response could result in preventative actions to preclude tank overflow.

Engineering personnel concluded that the oil collection system was operable but degraded. The licensee's planned corrective actions were documented in Licensee Event Report 98-011. The corrective actions were considered to be reasonable and adequate. Plant licensing personnel indicated that a supplement to Licensee Event Report 98-011 would be submitted to reflect the revised useable oil collection tank capacity.

c. Conclusions

The engineering review conducted in December 1998 regarding the inadequate Primary Coolant Pump Oil Collection System was not rigorous in that engineering personnel failed to identify that all of the oil could not be drained from the tank through the normal drain path. Also, precise measurements of collection tank dimensions were not obtained in December 1998. Consequently, the oil collection tank's useable capacity was less than that reported in Licensee Event Report 98-011. Safety consequences were considered minimal.

E2 Engineering Support of Facilities and Equipment

E2.1 Main Steam Isolation Valve CV-0510 Failed to Fully Close

a. Inspection Scope (62707, 37551)

The inspectors reviewed licensee actions after Main Steam Isolation Valve (MSIV) CV-0510 failed to fully close and observed portions of the related troubleshooting and maintenance activities. The following documents were reviewed.

- Condition Reports C-Pal-99-062 and C-PAL-99-0744
- Work Order #24610966
- QO-37, "Main Steam Isolation and Bypass Valve Testing"

b. Observations and Findings

On May 10, 1999, during performance of Surveillance Test QO-37, MSIV CV-0510 did not fully close. The surveillance test was performed with the plant in cold shutdown for a planned maintenance outage. The MSIV design was a swing disc check valve that had an air-operated piston and cylinder actuator design to assist valve opening. After air was bled from the cylinder a spring assisted valve closure. The main motive force for closing the valve however was gravity and process steam flow acting on the valve disc.

The MSIV had an active safety function to close and provide isolation in the event of a steam generator tube rupture or a steam line rupture. When MSIV CV-0510 was tested, the plant was in cold shutdown with no steam flow across the valve. In this plant condition only gravity acting on the valve disc and the actuator spring provided closing forces. Consequently, no process steam flow would assist valve closure. The test conditions satisfied the basis for Technical Specification 3.5.1f, which required that the MSIV could close in 5 seconds or less under no flow conditions.

As detailed in Inspection Report 98022, during the December 1998 outage, system engineering personnel with assistance from the vendor conducted extensive testing and identified several problems. The licensee concluded that one factor that contributed to the valve's failure to close during the December 1998 plant shutdown was increased friction on the packing.

Valve stem strain gauge testing that was conducted during this outage indicated that excessive packing friction again contributed to the MSIVs failure to fully close under no flow conditions. The valve was not opened or inspected to identify other potential friction sources.

Lower torque requirements were employed during the subsequent repacking of the valve. Prior to the valve being repacked, system engineering personnel calculated the various friction forces on the valve disc to more accurately predict the torque requirements to be used to consolidate the packing. After the valve stem stuffing box was repacked, MSIV CV-0510 closed fully within 5 seconds under no flow conditions to satisfy required surveillance testing criteria. The valve was subsequently declared operable.

Engineering personnel generated Condition Report C-PAL-99-0621 to document that CV-0510 failed to close during surveillance testing. The inspectors noted that past operability was appropriately addressed.

c. Conclusions

Engineering had conducted extensive testing regarding Main Steam Isolation Valve CV-0510 failing to fully close during required surveillance testing in cold shutdown. Engineering personnel's analysis was thorough and concluded that the root cause was excessive packing friction. Operability recommendations provided by engineering personnel were appropriate.

E2.2 Reliability of the Power Operated Relief Valves (PORVs) Position Indication

a. Inspection Scope (37551, 62707, 61726)

The inspectors reviewed surveillance test data for the PORVs after maintenance was performed to replace position indication during the planned maintenance outage. The inspectors reviewed the following documents:

- Quarterly Operation(QO) Procedure QO-6, "Cold Shutdown Valve Test Procedure (Includes Containment Valves)" Revision 8
- Work Order #24910217, "Adjust Position Indication Switch POS-1043B for PORV PRV-1043B"
- American Society for Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, 1989 Edition, Section XI
- Condition Report C-PAL-99-0653, "PRV-1043B Indication Failed, Both Closed and Open Lights Lit"
- Condition Report C-PAL-99-0020, "Unreliable Position Indication on PORVs"
- RI-115, "Power Operated Relief Valves"

b. Observations and Findings

Following the December 1998 outage, pressurizer PORV position indications for PRV-1042B and PRV-1043B were considered inoperable. Technical Specifications required that the position indications be repaired prior to startup from the next plant shutdown to cold shutdown. (This was discussed in Inspection Report 50-255/98022). During the May 1999 maintenance outage, the position indications were replaced to address the technical specification requirement.

However, post maintenance testing revealed that PRV-1043B had both indications lit when the valve was closed. Position indication for PRV-1042B worked as designed. Engineering personnel conducted thorough troubleshooting and subsequently resolved the position indication problem associated with PRV-1043B. Subsequently, the position indication was tested and declared operable which satisfied the technical specification requirement.

The inspectors reviewed the operability recommendation that was conducted during the December 1998 outage and compared it with an operability recommendation that was documented by engineering personnel during this outage. Also, the inspector's discussed PRV-1043B operability with various engineering and maintenance personnel. The inspectors noted that documented information and discussions with licensee personnel revealed conflicting information regarding the status and operating characteristics of PRV-1043B.

Specifically, some related documentation from the December outage indicated that PRV-1043B went full open when it was stroked cold with no differential pressure. However, during the maintenance outage the licensee concluded that the PRV-1043B was not stroking full open when cold with no differential pressure. Other related

documentation from the May outage indicated that the solenoid was degraded in that it was not able to stroke the valve full open under cold conditions with no differential pressure. Maintenance personnel indicated that the solenoid was not degraded based on data taken during the December outage. The original operability recommendation that was provided by engineering personnel did not address the conflicting information.

Engineering personnel apparently did not incorporate the information that was learned about the PORVs during this outage with the documented information from the December 1998 outage. Consequently, the analysis and related operability recommendation developed during this inspection period conflicted with information that was documented during the December 1998 outage.

Following questioning by the inspectors, engineering personnel adequately addressed the conflicting information in a revised operability recommendation. Engineering personnel concluded that the solenoid for PRV-1043B was not degraded; the valve would perform its safety-related function; and therefore, the valve was operable.

c. Conclusions

Engineering personnel provided ample support during repairs to the pressurizer PORV position indications.

However, the inspectors concluded that engineering personnel's initial operability recommendation for PRV-1043B was not thorough. Information available from various sources regarding the status and operating characteristics of PRV-1043B was not integrated into the operability recommendation. Consequently, the operability recommendation did not address conflicting information. Engineering personnel adequately addressed the issue in a revised operability recommendation.

E8 Miscellaneous Engineering Issues (92903)

E8.1 Temporary Instruction 2515/141

The inspectors completed Temporary Instruction (TI) 2515/141, "Review of Year 2000 (Y2K) Readiness of Computer Systems at Nuclear Power Plants." The NRC will release the results in a separate document when the TI has been completed at all nuclear power plants nationwide. However, the inspectors discussed the specific findings of the Palisades review with the licensee.

E8.2 (Closed) Unresolved Item 50-255/97018-02: "Use Of Heat Treated Steel Nuts and Bolts On Spent Fuel Pool Valves." The inspectors noted that heat treated steel nuts and bolts were used on the body to bonnet connections for Spent Fuel Pool Valves MV-131 and MV-132 following maintenance to repair body to bonnet leaks. However, the spent fuel pool contained borated water and therefore, use of stainless steel bolting materials would have been consistent with Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary Components in PWR Plants," regarding this issue.

The licensee's evaluation concluded that using heat treated steel nuts and bolts on MV-131 and MV-132 was acceptable which was based on:

1) Specification Change SC-87-031 was conducted to evaluate replacing carbon steel bolting with stainless steel bolting in systems that contained boric acid and concluded that using carbon steel bolting in MV-131 and MV-132 was acceptable;

2) future body to bonnet leakage from the valves would be quickly identified because the valves were in high traffic areas, not insulated, and easily visible;

3) the valves would be inspected in accordance with Engineering Procedure EM-26, "Engineering Boric Acid Leak Inspection," which required boric acid walkdowns at every refueling outage as a minimum;

4) design/repair specification, M-260, piping class sheet class HC, allows for use of either carbon steel or stainless steel; and

5) the valves service application was in a low pressure (less than 50 psig) and low temperature (less than 100°F) system.

The licensee acknowledged that stainless steel was the preferred bolting for MV-131 and MV-132; however, based on the specific application, the licensee concluded that bolting replacement was not warranted at this time. Corrective actions completed to ensure that stainless steel material would be used for any future body to bonnet bolting substitutions included:

1) stock parts list for MV-131 and MV-132 were changed to reflect use of stainless steel material; and

2) piping class HC (150 psig, austenitic stainless steel) and the applicable vendor valve drawings were revised to state "carbon steel fasteners shall not be used in systems containing boric acid; contact system engineering prior to using carbon steel fasteners."

The inspectors reviewed the licensee's response to Generic Letter 88-05 and noted that the licensee had satisfied documented commitments. Also, the inspectors concluded that the licensee's evaluation and corrective actions regarding use of carbon steel vice stainless steel bolting material for MV-131 and MV-132 were adequate. This item is closed.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R5 Staff Knowledge and Performance In Radiological Protection (71750)

The inspectors reviewed data regarding projected and actual dose for the May 1999 outage. Also, the inspectors discussed radiological controls with plant personnel and was accompanied by a Health Physics Technician on a tour of containment.

The inspectors had the following noteworthy observations regarding control and performance of radiological protection activities:

- technicians thoroughly monitored and supported work activities in containment;
- radiological protection personnel challenged plant personnel to work smarter and more efficiently in an effort to reduce dose. This was accomplished through briefings of entire maintenance shifts, during pre-job briefings, and on an individual basis at access control;
- radiological protection personnel highlighted ALARA principles throughout the outage; and
- radiation dose that was received (4502 mrem) during the outage was less than the projected (5635 mrem) dose.

The inspectors concluded that radiological protection personnel's efforts in challenging radiation workers to work smarter and more efficiently, and in highlighting ALARA principles were effective. Consequently, the actual radiation dose received during the outage was 20 percent less than what was projected.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on May 21, 1999. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

G. R. Boss, Operations Manager
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INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 61726:	Surveillance Observations
IP 62707:	Maintenance Observations
IP 71707:	Plant Operations
IP 71750:	Plant Support Activities
IP 92901:	Followup Operations
IP 92903:	Followup Engineering
TI 2515/141:	Review of Year 2000 (Y2K) Readiness of Computer Systems at Nuclear Power Plants

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

50-255/96014-05	URI	Review by Nuclear Reactor Regulation of Difference Between Technical Specifications and As-Built Control Room Heating, Ventilation and Air Conditioning
50-255/97018-02	URI	Use Of Heat Treated Steel Nuts and Bolts On Spent Fuel Pool Valves

Discussed

None